G. STEINL.

GAS PRODUCER.

APPLICATION FILED MAR. 19, 1910.

998,809.

Patented July 25, 1911.

3 SHEETS—SHEET 1.

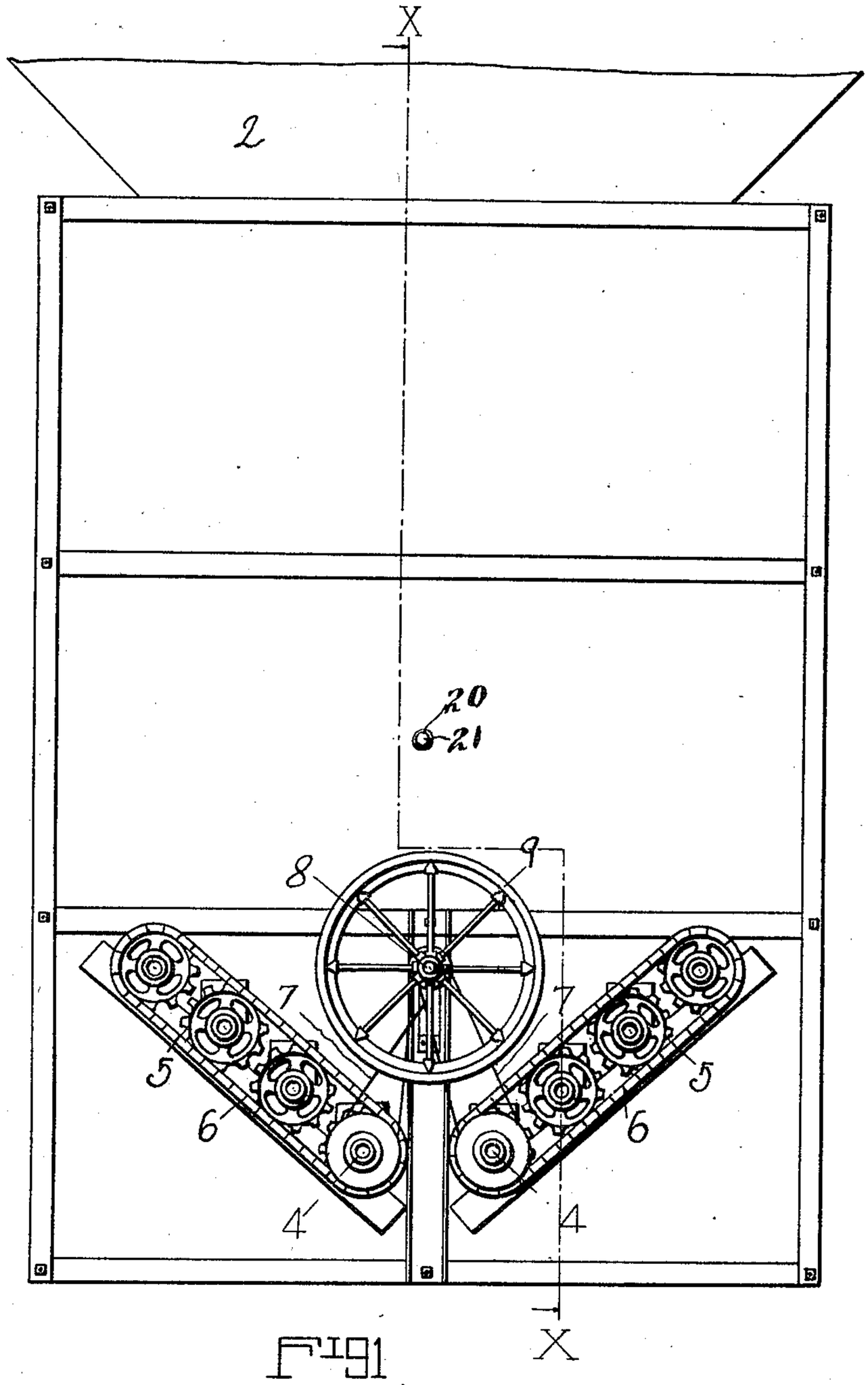

FIG 1

WITNESSES:

W. M. Parham,

J. S. Murray

INVENTOR

George Steinl

BY John McSpellman

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

G. STEINL.

GAS PRODUCER.

APPLICATION FILED MAR. 19, 1910.

998,809.

Patented July 25, 1911.

3 SHEETS—SHEET 2.

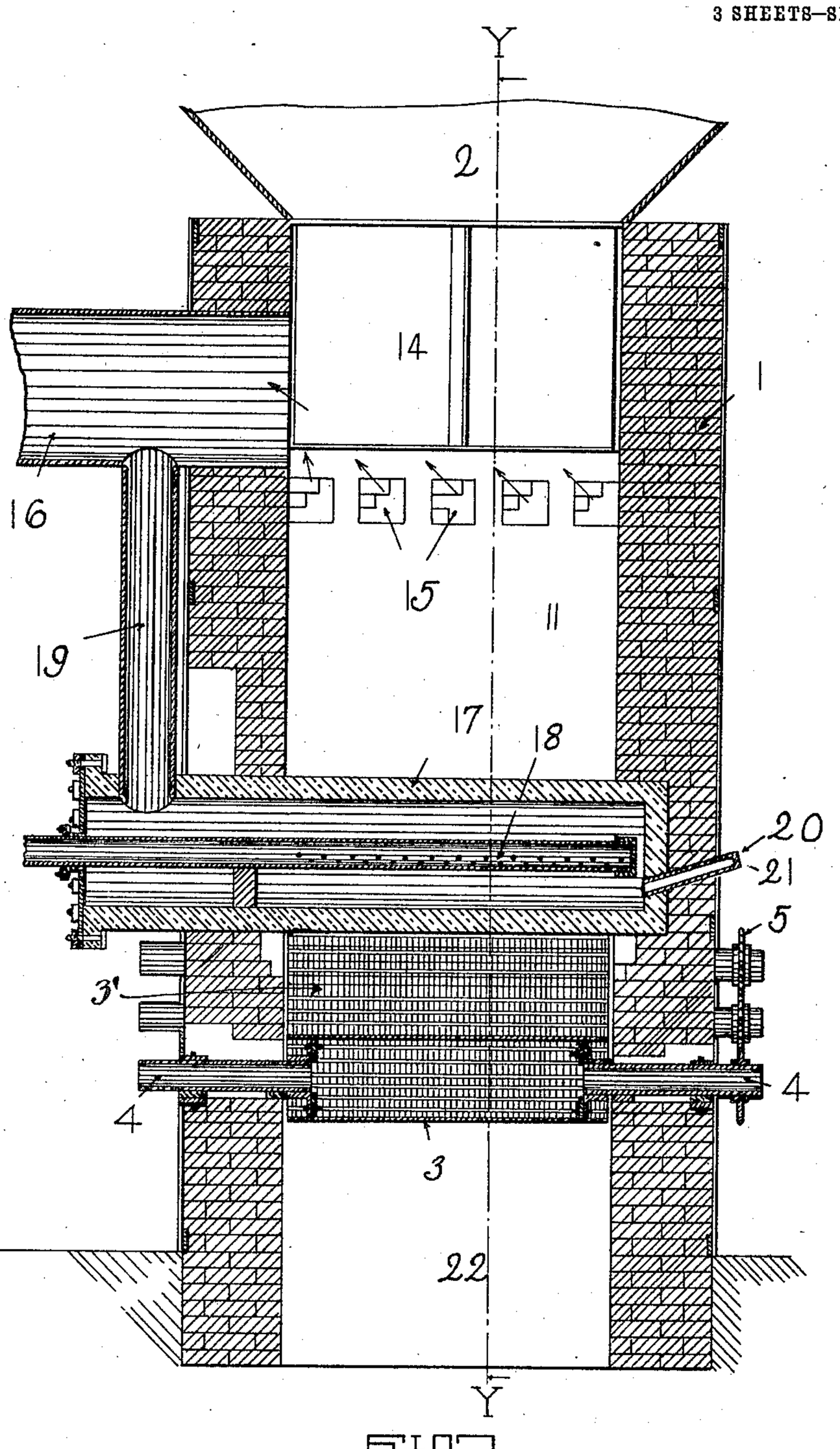

Fig 2

WITNESSES:

W. M. Parham

J. S. Murray

INVENTOR

George Steinl

BY John M. Spellman

ATTORNEY

G. STEINL.

GAS PRODUCER.

APPLICATION FILED MAR. 19, 1910.

998,809.

Patented July 25, 1911.

3 SHEETS—SHEET 3.

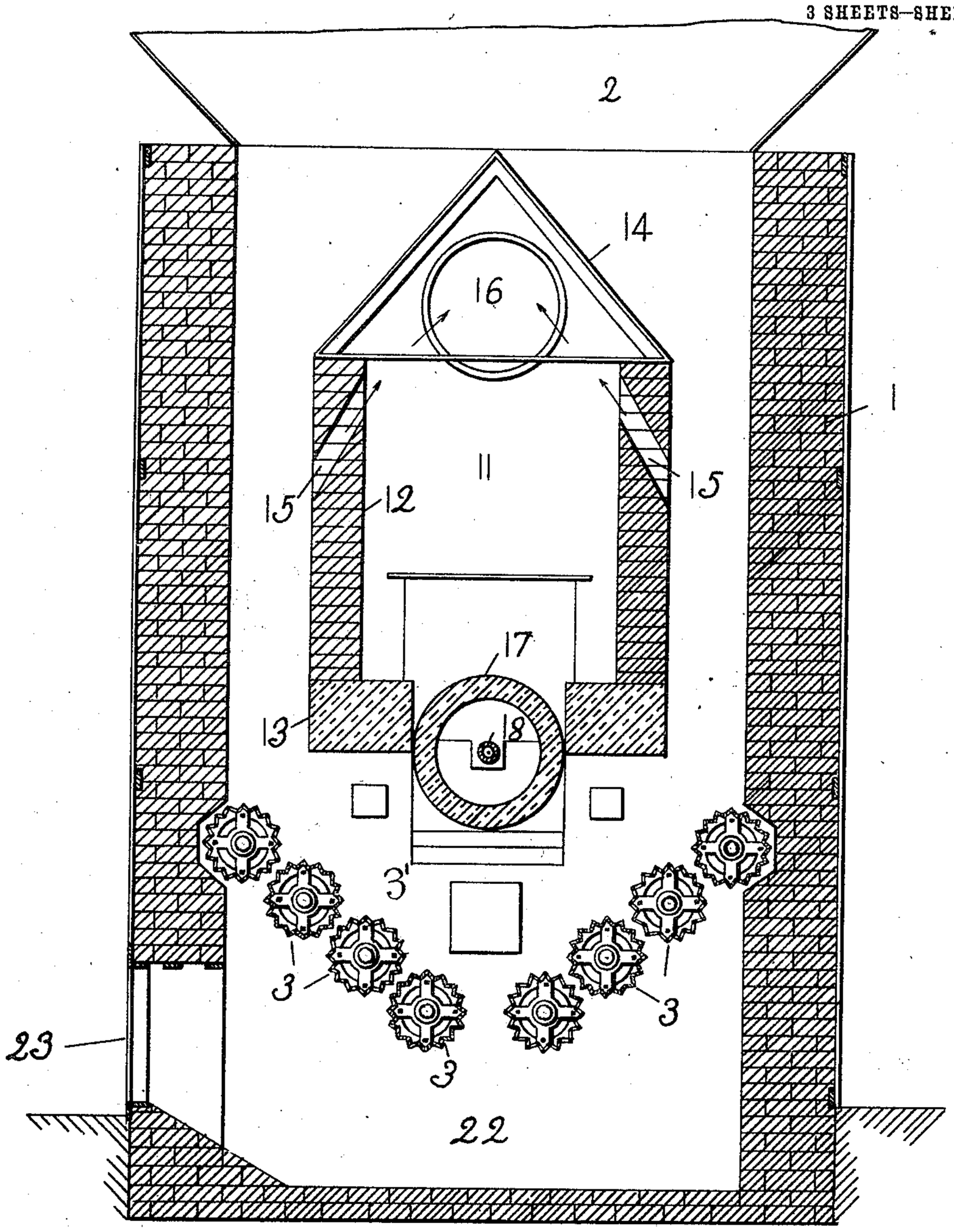

FIG 3

WITNESSES:

W. M. Parham

J. S. Murray

INVENTOR

George Steinl

BY John McSpellman

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE STEINL, OF GINGER, TEXAS, ASSIGNOR OF ONE-HALF TO THOS. J. SHAW, OF GINGER, TEXAS.

GAS-PRODUCER.

998,809. Specification of Letters Patent. Patented July 25, 1911.

Application filed March 19, 1910. Serial No. 550,347.

To all whom it may concern:

Be it known that I, GEORGE STEINL, citizen of the United States, residing at Ginger, in the county of Rains and State of Texas, have invented certain new and useful Improvements in Gas-Producers, of which the following is a specification.

My invention relates to new and useful improvements in gas-producers. Its object is to provide a gas producer in which the gas generated by the combustion of coal, will be enriched to any desired extent by a gas which is produced simultaneously by the gasification of coal oil.

Another object is to provide a gas producer which will utilize all the heat units of the fuel, leaving no residue of coke.

A further object is to provide a gas producer employing suction to remove the gas from the generating chamber, eliminating the process of driving out the gas by steam, which process temporarily weakens the gas and makes it less efficient for immediate use.

A still further object is to provide a gas producer having an improved form of grate, adapted to increase the draft and facilitate the removal of ashes from the grate.

Finally, the object of the invention is to provide a device of the character described, which will be strong, durable, simple and efficient and comparatively easy to construct, and also one, the parts of which will not be likely to get out of working order.

With these and various other objects in view, my invention has relation to certain novel features of the construction and operation, an example of which is described in the following specification, and illustrated in the accompanying drawing, wherein:

Figure 1 is an end elevation of the gas producer showing mechanism by which the cylinders which constitute the grate are adapted to be manually operated. The upper portion of the feeding hopper at the top of the producer is broken away in this view. Fig. 2 is a vertical sectional view of the producer, taken on the line *x*—*x* of Fig. 1, a portion of the feeding hopper being again broken away. Fig. 3 is a vertical sectional view taken on the line *y*—*y* of Fig. 2.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in all the figures, the numeral 1 denotes the walls of the gas producer, which are preferably constructed of brick. A hopper 2, is provided at the top of the gas producer to facilitate the introduction of fuel thereinto. The grate consists of a number of hollow perforated cylinders 3, provided with journals 4, which are rotatably mounted in the walls 1. At one side of the gas producer, on the exterior thereof, sprocket wheels 5, are mounted upon the projecting portions of the journals 4, which sprocket wheels carry chains 6. Ropes or belts 7, are adapted to communicate rotation from the spindle 8 of the hand-wheel 9 to the spindles 4 of the two lowest grate cylinders. By means of the sprocket wheels 5 and the chains 6, the remaining grate cylinders are operated from the two lower ones.

The numeral 11 designates an exhaust chamber centrally located within the gas producer, which chamber is formed by transverse walls 12, resting upon beams 13 of any suitable fire-proof material, and a top 14, inclined from the center to the sides so as to offer no support to the fuel the fuel then dropping uniformly into the fuel chamber 3′ above the said grates. A plurality of inclined apertures 15 are provided in the walls of the exhaust chamber, to permit the entrance of gases of combustion from said fuel chamber to said exhaust chamber. A suction pipe 16 which communicates with the upper portion of the exhaust chamber, is adapted to withdraw the gases from said chamber.

The numeral 17 denotes a cylindrical fire-proof retort, mounted transversely of the gas producer, and forming a portion of the bottom of the exhaust chamber 11. Into this retort, there extends an oil feed pipe 18, the lower portion of which is perforated within said retort. The perforations permit the oil to be ejected in fine streams from the feed pipe 18 upon the heated walls of the retort, causing the oil to be immediately vaporized. The gas generated is conducted from the retort to the suction pipe 16 by a connecting pipe 19. A pipe 20 containing a glass plug 21 communicates with the interior of the retort and permits the attendant to observe whether the gasification of the oil is complete.

The numeral 22 denotes an ash-pit beneath the grate, to which access is had through a door 23. The form of grate shown, con-

sisting of rotatable cylinders, is advantageous in that it gives a strong draft, permits the ashes to be readily shaken down, and makes it possible to remove the heated portions of the grate from contact with the fire, by rotation.

It is obvious that mechanical means may be employed to produce a continuous rotation of the cylinders 3, as a substitute for the manually rotated hand-wheel 9. Any suitable means may be employed to produce the suction in the pipe 16.

I am aware that changes may be made in the form and proportion of parts and details of the herein described device, without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations in said device as fairly come within the scope of the following claims.

What I claim is:—

1. In a gas producer the combination with a grate positioned in the lower portion thereof, longitudinally extending beams spaced above said grate, a rectangular exhaust chamber supported by said beams and centrally positioned in said producer, apertures in said exhaust chamber connecting with the producer and a suction pipe for connections with said exhaust chamber.

2. In a gas producer the combination with a grate positioned in the lower portion thereof, a pair of longitudinally extending beams spaced above said grate, a rectangular exhaust chamber supported by said beams, the said exhaust chamber having an inclined top, and inclined apertures in its side walls, a cylindrical fire-proofing retort between said beams and adjacent the lower ends of said exhaust chamber, a suction pipe extending from the top of said exhaust chamber and a connection between said retort and said suction pipe substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE STEINL.

Witnesses:
W. W. CAMPBELL,
B. E. BOZEMAN.